

Executive Registry

82-0536/1

10 APR 1982

MEMORANDUM FOR: [REDACTED]

Director, Intelligence Community Staff

FROM:

John N. McMahon
Executive Director, CIA

SUBJECT:

Technical Manpower Study

REFERENCE:

Your Memorandum (82-4202), dtd 24 Feb. 82,
Same Subject

1. Attached is the response to the referent memorandum concerning the long-range technical manpower requirements for the Agency. This response was prepared by the Office of Personnel with input from all of the Agency Directorates.

2. Our designated point of contact for any questions is [REDACTED] Chief, Human Resources Planning Staff/OP, on extension [REDACTED] (secure).

/S/ John N. McMahon

John N. McMahon

Attachment

Distribution:

Orig. - Adse w/att

1 - ExDir w/att

1 - ER w/att

2 - D/OP w/att

1 - Subject w/att

1 - Chrono wo/att

OP/C/HRPS/[REDACTED]:rr (13 April 82)

ORIGINATOR [REDACTED]
Director of Personnel

16 APR 1982

This document may be down-
graded when separated from
classified attachment.

ROUTING AND RECORD SHEET

82-0536/11

SUBJECT: (Optional)

Technical Manpower Study

FROM: James N. Glerum
Director of Personnel
5E58 Hqs.

EXTENSION

NO.

DATE

16 APR 1982

25X1

TO: (Officer designation, room number, and building)

DATE

RECEIVED

FORWARDED

OFFICER'S INITIALS

COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

1. Executive Registry
7E12 Hqs.

16 Apr 82

J.C.

2.

3. Executive Director
7D55 Hqs.

19 APR 1982

✓

4.

Pers

19 APR 1982

A.D.

5.

DD/PLS

19 APR 1982

A

6.

7.

D/PLS

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DD/PATE

10.

11.

12.

13.

14.

15.

* 3 - I believe this is an example of the useful work OP can do when the opportunity exists & get into the game early enough. Jim

Good paper

ROUTING AND RECORD SHEET

SUBJECT: (Optional)

Technical Manpower Study

FROM:

Chief, HRPS/OP
1012 Ames

EXTENSION

NO.

82-6193

DATE

14 April 1982

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TO: (Officer designation, room number, and building)

DATE

RECEIVED

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OFFICER'S INITIALS

COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

1. DD/PA&E
1006 Ames

14 APR 1982

✓

This study has been coordinated with the Compensation Study Group and with Recruitment Division/OP. The figures for the current pool of technical personnel and job type are based on directorate submissions to the Office of Personnel, and the projected requirements are based on directorate requirements and estimated Agency growth.

5. DD/OP

The sections on Training and Recruitment are verbatim submissions provided by the Office of Training and Education and Recruitment Division/OP, respectively.

6.

7.

D/OP

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15.

All the Agency directorate were invited to respond to any portion of the study they felt was germane to their particular technical manpower problems.

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Att

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TECHNICAL MANPOWER STUDY

At the request of the Intelligence Community Staff, the Office of Personnel has developed a preliminary study of the long-range needs for technical manpower. This study incorporates the best estimates from the Agency Directorates as to their long-range manpower needs and identifies areas where there may be problems in acquiring the needed levels of technical personnel. (U)

The study finds that electrical, electronic, optical engineers and imagery scientists are the hardest categories of personnel to obtain. It also projects that there will be requirements for twice the rate of increase for engineers compared with other categories of personnel, and it is likely there will be some difficulty in meeting these long-range needs. This will be particularly true if the defense build up continues and the competition with private industry for engineers increases. (C)

The Agency is currently meeting its needs for computer scientists and has a good record of retaining this type of personnel. It is, however, experiencing difficulty in obtaining computer scientists with communication engineering backgrounds and personnel with combined hardware and software experience. (C)

The study finds that like engineers, the requirement for computer scientists will be double the rate of increase for other kinds of personnel. While currently the Agency is able to obtain the needed level of computer scientists, it will be hard pressed to meet its long-range requirements. (C)

Recruitment has reported there is still a good supply of physical scientists, civil or mechanical engineers. However, as other types of technical personnel become increasingly difficult to obtain, it is likely that these categories will be drawn on to fill other technical positions. (C)

The conclusion of the study is, while the Agency is not currently having major problems in meeting its technical manpower requirements, it will have to closely monitor the situation and make adjustments in order to remain competitive. These adjustments will include pay incentives, types of training, and assuring a work environment which encourages technical personnel to take jobs with the Agency. (C)

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designation. This is because of rotational assignments, a change in career service designation where the occupational title is changed at a later date, or temporary assignments for special projects. As of 1 April, there were personnel in this category. (S)

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Another factor which affects a direct comparison between people and positions is that personnel are assigned to these positions but do not carry occupational codes describing them as a computer scientist, physical scientist, or engineer. As of 1 April, there were [] personnel in this category. (S)

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In fact, a close examination of these three categories of personnel also indicates a certain amount of inter-mixing of personnel. That is, computer scientists serve as physical scientists or engineers, or vice versa. A count as of 1 April indicates that there were 104 personnel with these three occupational groupings in positions where the job and position title did not match. (S)

- B. Please complete a similar matrix for your organization for FY 1987; provide only the number of positions being requested. (U)

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The growth in the number of physical scientists is expected to be proportional to the growth in Agency strength. This means if the Agency strength increases by 20 percent between 1982 and 1987, then it is expected there will be an additional requirement for about [] physical scientists. (S)

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The growth in the number of computer scientists and engineers is expected to grow at a faster rate than the growth in Agency strength. The current ratio of increase compared to the Agency, is 2 to 1, which means if the Agency strength increases by 20

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percent, than the requirement for computer scientists will be 40 percent above the current level. This means there will be an additional requirement for about computer scientists and engineers. (S)

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- C. In those instances where personnel shortfalls have existed for prolonged periods, what measures has your Agency taken to cope with the situation? (U)

None of the Directorates indicated that they have been faced with prolonged shortfalls in technical personnel. Therefore, no special measures have been taken to cope with the situation. (C)

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II. Recruitment (Section provided by Office of Personnel/
Recruitment Division, OP/RD)

- A. What are your general recruitment procedures with respect to technical personnel? (U)

In general, recruitment procedures for technical personnel are the same as for other employee candidates. However, field recruiters do regularly visit those schools with excellent reputations for graduating engineers, computer scientists, mathematicians, etc. (C)

- B. What special efforts are being made to attract the categories of technical personnel listed above? (U)

Special efforts to attract these categories of candidates include advertising in technically-oriented publications; participating in job fairs and association conferences, etc., and visiting and developing faculty members, deans, etc., on the college campuses. (C)

- C. To what extent are professional groups being called upon to assist? (U)

Recruitment Division receives valuable assistance from individuals assigned to the various offices seeking technical applicants. In some instances, Agency employees are members of professional associations and utilize such contacts as a source for applicants. (C)

- D. Is any one category more difficult to recruit than another? Easier than another? (U)

In general, technical applicants are more difficult to find than other categories. However, the most difficult categories to recruit are electrical, electronic, optical engineers and imagery scientists. At the other end of the scale are physical scientists and civil or mechanical engineers. (C)

- E. Are there administrative procedures or requirements that impede the hiring of technical personnel? (U)

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Although special pay scales have been developed for certain categories of applicants, the Agency still is probably below the private sector with regard to salaries that can be offered to technical applicants. Also, the lengthy processing time is a definite factor that impedes the hiring of technical personnel. This is due to the fact that most technical applicants are in such demand in the private sector, they are unwilling to wait for completion of the processing which could take as much as six to nine months. (C)

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III. Retention

- A. What are the attrition rates in the above categories and how do they compare with other categories of professional personnel? (U)

The overall attrition rate for the Agency is currently 3.5 percent, which is much lower than the usual average of about 7 percent. The current breakdown of the 3.5 percent shows professional attrition running at 3 percent and clerical attrition running at about 5 percent. (S)

Indications are that attrition for technical personnel has remained average but has not fallen with the fall in attrition rates for other types of professional employees. (C)

This seems to indicate, while the external job market may be difficult for other types of employees, there is still demand for technical employees. (C)

1. Computer Scientists: The resignation rate is approximately 3 percent and the retirement rate is below 1 percent for computer scientists. The overall retention rate has been very good. The few losses which do occur tend to be resignations rather than retirements, which indicates some movement to the external job market. On an overall basis the historical number of external separations has been lower than the Agency average. (S)
 2. Physical Scientists: The resignation rate is approximately 4 percent and the retirement rate is approximately 1 percent. The overall retention rate for physical scientists has been average. The majority of losses are resignations with a small number of retirements. (S)
 3. Engineers: The resignation rate for engineers is approximately 4 percent and the retirement rate is approximately 1 percent. These are the same rates as the physical scientists. The majority of losses are resignations, with a small number of retirements. (S)
- B. What in the way of pay and incentives is being considered to reduce the disparity between what is offered in the private and the public sector? (U)

The pay and compensation study, which is currently being developed by the Office of Personnel, looks at the disparity in compensation between Agency jobs and jobs outside the Agency.

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This study is looking at all the factors which can be considered compensation (pay & perks) and ranks Agency jobs as a percentage of the "marketplace rate" for similar jobs. (AIUO)

The preliminary results of the study indicate that the compensation for computer programmers and chemical engineers is well below the "marketplace rate". The study also indicates that as a group, the physical scientists and engineers are undercompensated but are still competitive in terms of pricing. (AIUO)

These findings represent the first step in developing a program to ensure the Agency remains "competitive" in attracting these groups. (AIUO)

- C. What is being done now or is under consideration in the area of job enrichment directed specifically at technical personnel? (U)

None of the offices indicated any special programs for job enrichment which were specifically oriented at computer scientists, physical scientists, or engineers. However, the DDI provided an example of the programs provided for their professional personnel which would include the above technical groups:

- Advanced Analyst Development Program -- designed for GS 11-15 analysts who would like to improve language and knowledge on a Third World country; other countries also considered. (AIUO)
- DCI Exceptional Intelligence Analyst Program -- designed to enrich skills of GS 11-15 analysts throughout the Intelligence Community. It can involve full-time academic training, work experience outside CIA, overseas travel, or independent research on topic of intelligence interest. (AIUO)
- President's Executive Interchange Program -- for promising senior analysts or managers who could benefit by a one year rotational assignment in private industry. (AIUO)
- Academic training on work-related subjects at local universities (it is now a requirement for all analysts to take at least one work-related course every two years--this is intended to broaden their perspective and refresh their substantive knowledge). (AIUO)

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--Analyst training course, a nine-week program developed for DDI career trainees. It is intended to provide overview of the Intelligence Community, an in-depth look at analysis as it is carried out in the DDI, and the opportunity to prepare a paper on an issue of currence. (AIUO)

D. What other actions are being taken to retain these categories of employees? (U)

None of the offices indicated any special programs to retain these categories of personnel. In fact, there is some indication that a certain amount of turnover in these job categories is beneficial to the Agency. This is because it has the effect of bringing in the latest skills and techniques that new personnel have to offer. (C)

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IV. Training (Section provided by Office of Training and Education)

- A. How would you characterize the objectives of that portion of your training program directed at the categories of individuals under discussion? (U)

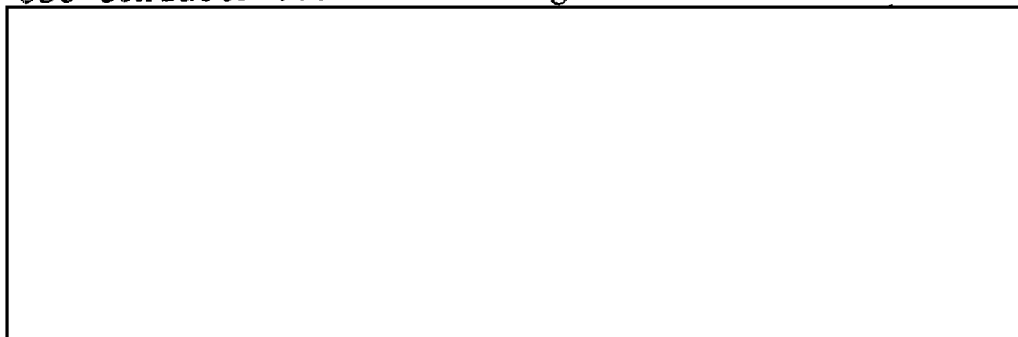
In addition to the Office of Training and Education's (OTE) curriculum, with some sixty plus courses in the non-technical area, Agency components conduct on-the-job training for employees in the three job categories, and at times contract for specialized technical and technological courses (see II below). In this connection, we have focused on eight Agency components, which probably have the heaviest concentration of engineers, computer scientists, and physical scientists: Office of Communications (OC), Office of Data Processing (ODP), Office of Technical Services (OTS), Office of SIGINT Operations (OSO), Office of Research and Development (ORD), National Photographic Interpretation Center (NPIC), the Office of Development and Engineering (OD&E), and the Foreign Broadcast Information Service (FBIS). (C)

- B. What in-house training do technical personnel receive to qualify them for the particular job for which they were hired? To keep them current in their technical field? (U)

All technical personnel are qualified for the positions for which they were hired at the time of employment. However, to meet specialized Agency criteria that cannot be obtained elsewhere, the following are examples of some component-conducted courses:

1. OSO conducts courses for engineers and electronics

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2. The Office of Data Processing offers 26 courses in all phases of data processing from Introduction to Data Communications, Introduction to EDP, basic - intermediate - advanced computer languages, Data Base Administration, operations education, micro-processor application development, minicomputers, RAMIS training, script, to System Design and Analysis. (C)

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3. The Office of Communications offers over 60 courses, ranging from the maintenance and operation for communications technicians, to microwaves, satellite communications, and the like. (C)
4. Components contract for specialized technical courses to be given "in-house" -- example: currently, the DDS&T is contracting with S Consulting Services to hold a Digital Communications/Digital Telecommunications Technology course for selected engineers from across the Agency. (C)
5. DDS&T hired an independent contractor to conduct a one-week Engineering Seminar on Program Management, two runnings, for 42 technical employees. (C)
6. DDS&T/NPIC contracted for courses on Electro Optical Systems, Experimental Design, Frequency Processing and Correlation, [REDACTED] (C)
7. External Training: Each of the components listed, as well as several other Agency components with a limited number of employees in the three job categories of concern, are steady users of external training to keep up with the "state of the art". A scan of our external training logs and computer listings reveals Agency sponsorship in part-time, and at times full-time, academic programs, in Engineering, Computer Science, and Physical Science courses; sponsorship in Interagency courses, and at professional meetings and conferences (there is much more of this than reflected in OTE records, it should be noted), and courses and seminars in the private sector, both locally and away from the Washington area. The O/COMPT lists the following budget projections for external training for Fiscal Year 1982:

Office of Data Processing	\$108,570	
Office of Communications	220,000	
Office of Technical Services	78,000	
National Photographic Interpretation Center	310,000	
Office of Research and Development	28,000	
Office of Development and Engineering	30,000	
Office of SIGINT Operations	120,000	
Foreign Broadcast Information Service	80,000	(S)

The budgets for OD&E and ORD are much lower than the other components, but much of their external training is covered in research and equipment contracts. (C)

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- C. What opportunities exist for external training? To obtain an advanced degree? To undertake independent research? To take a sabbatical? (S)
1. Although there are constraints in the present law (Title 5, U.S. Code, Chap. 41) governing external training, in general, the authorities granted by the law are sufficiently broad and flexible to enable the Agency to provide whatever training is necessary to develop the skills, knowledge, and abilities that will best qualify its employees for the performance of official duties. All employees who have served one full year of current civilian Federal service are eligible to receive job-related training at non-Government facilities within budget limitations. Employees are eligible for training at Government facilities as needed without regard to length of service. The Agency has a waiver authority, however, to allow training at a non-Government facility, for employees with less than the required one year of Federal service, if the training is deemed to be in the public interest, and so certified by a Deputy Director, Associate Deputy Director, or his designee. (AIUO)
2. Title 5 prohibits training at non-Government facilities for the sole purpose of obtaining an academic degree, for the purpose of obtaining an academic degree to qualify for a position for which an academic degree is a requirement, or for training through non-Government facilities for the purpose of filling a position by promotion if there is available another qualified employee. However, if the acquisition of a degree is a by-product of sponsored training, that is acceptable as long as Government funds were not expended for those fees required for the degree itself. (It should be noted that there is nothing in the law that prohibits training for a degree at Government facilities as long as the training relates to official duties.) (U)
3. When advisable in the public interest, it is possible to be granted waivers for the limitations and constraints imposed by the law. The above applies to those employees undertaking independent research or being sponsored for full-time academic training (sabbatical). If a sabbatical were proposed that did not fall within the definition of "training" under Title 5, U.S. Code, Chapter 41, it would not be approvable. (U)
- D. How is training, internal or external, integrated into an individual's program for career development? (U)

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1. Agency components have career development ladders for the progression of employees.. These ladders specify what training is needed for any given step. The Advanced Work Plans and Performance Appraisal Reports also address training for employees, both internal and external, for a given period of time. (C)
2. The completed training is entered in the OP Official Personnel Folder, the computerized Agency Training System, controlled by OTE, and these tools are referred to by career management officers, career boards and panels, etc. (C)

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V. Other

- A. How do you assess your capability to fulfill your technical manpower needs for the remainder of the decade? (U)

There is already some difficulty in recruiting electrical and optical engineers and imagery scientists. If the current defense build up continues, it is likely that these groups will become increasingly difficult to recruit. (C)

It is also likely that as the competition for technical personnel increases, there will be shortages in other areas. (C)

- B. Please feel free to comment on any aspect of this study not already touched on. (U)

Various suggestions were made in the office submissions to this study. Included in these suggestions were the following:

- OTE suggested using the former Director of NPIC's philosophy of "growing your own" to develop the hard-to-get category of photogrammetrists. Such a program would include the identification of upward mobility candidates, on-the-job training, and academic sponsorship. (AIUO)
- Increased emphasis on the Co-op work study program. The Agency has had good success in attracting personnel with specialized training through use of this program. (AIUO)
- With a waiver from Title 5, the Agency could develop a program for the recruitment of college graduates which would provide sponsorship for additional full-time study in Computer Science, Engineering, or Physical Science. (AIUO)

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